## NASA LANCE-FIRMS MODIS Active Fire Shapefiles

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**1. How do I use the active fire shapefiles?**


Shapefiles have become a standard for storing vector geometry and associated attribute information for files used in desktop GIS applications. Shapefiles were developed by ESRI. The file format is composed of a minimum of three files, a .shp .shx and .dbf files which need to be kept together in the same directory for the file to be opened by GIS software. A shapefile can be opened and visualized by the vast majority of GIS software, including ESRI ArcGIS and free and open source software such as Quantum GIS (www.qgis.org), gvSIG (http://www.gvsig.org/web/).


**2. What are the attributes in the active fire data?**


 • Latitude and Longitude: The center point location of the 1km (approx.) pixel flagged as containing one or more fires/hotspots (fire size is not 1km, but variable). For more information see the FIRMS FAQ: What does a hotspot/fire detection mean on the ground? (https://earthdata.nasa.gov/faq#ed-firms-hotspots)

• Brightness: The brightness temperature, measured (in Kelvin) using the MODIS channels 21/22 and channel 31.

• Scan and Track: The actual spatial resolution of the scanned pixel. Although the algorithm works at 1km resolution, the MODIS pixels get bigger toward the edge of the scan. For more information see the FIRMS FAQ: What does scan and track mean? (https://earthdata.nasa.gov/faq#ed-firms-scan-track)

• Date: Acquisition date of the hotspot/active fire pixel.

• Time: Time of the overpass of the satellite (in UTC).

• Satellite: Whether the detection was picked up by the Terra or Aqua satellite.

• Confidence: The detection confidence is a quality flag of the individual hotspot/active fire pixel.

• Version: Refers to collection and source. The number before the decimal refers to the collection (e.g. MODIS Collection 6). The number after the decimal indicates the source of Level 1B data. There are two sources: 1) data processed **in near-real time** by NASA-LANCE has the source code ".0",  2) standard data (**not** processed in near real-time), processed by the University of Maryland and distributed by FIRMS will have a source code ".1". So version:
  - o 6.0 is NRT collection 6 data
  - o 6.1 is standard collection 6 data.
    For more information on collections and on the differences between Rapid Response and MODAPS, please see https://earthdata.nasa.gov/faq#ed-firms-umd

• Bright.T31: Channel 31 brightness temperature (in Kelvins) of the hotspot/active fire pixel.

• FRP: Fire Radiative Power. Depicts the pixel-integrated fire radiative power in MW (MegaWatts). FRP provides information on the measured radiant heat output of detected fires. The amount of radiant heat energy liberated per unit time (the Fire Radiative Power) is thought to be related to the rate at which fuel is being consumed.

## 3. Additional Information

For more information on MODIS fire detections and caveats to consider when using the data, please see the LANCE - FIRMS FAQs.

For more information on the hotspot/active fire product and other MODIS fire products, please refer to the MODIS Active Fire and Burned Area Products website http://modis-fire.umd.edu/index.html  MODIS Collection 5 Active Fire Product User's Guide (version 2.4) (https://earthdata.nasa.gov/files/MODIS_Fire_Users_Guide_2.5.pdf). The guide provides the most current information regarding the Terra and Aqua MODIS Active Fire Products. It is intended to provide the end user with practical information regarding their use and misuse, and to explain some of the more obscure and potentially confusing aspects of the fire products and MODIS products in general.

## 4. Citation and Disclaimer

NASA promotes the full and open sharing of all data with the research and applications communities, private industry, academia, and the general public. Read the NASA Data and Information Policy.

If you provide the LANCE / FIRMS data to a third party, we request you follow the guidelines in the citation and replicate or provide a link to the disclaimer.

### *Citation*

Please note that data distributed from FIRMS comes from 2 sources: 1) near real-time data (MCD14DL) and 2) data extracted from standard data files (MCD14ML). If you are using the data in a scientific publication, you should be very clear which source you use. We recommend you read the MODIS Fire User Guide version 2.5 to ensure you are using the most appropriate source of MODIS active fire data for your application.

For more information about FIRMS and MODIS, visit the FIRMS FAQ.

For general acknowledgement of FIRMS data and imagery:

> *We acknowledge the use of FIRMS data and imagery from the Land, Atmosphere Near real-time Capability for EOS (LANCE) system operated by the NASA/GSFC/Earth Science Data and Information System (ESDIS) with funding provided by NASA/HQ.*

For Near Real-Time data only:
NASA FIRMS NRT MODIS Near real-time Hotspot / Active Fire Detections MCD14DL data set. Available on-line [https://earthdata.nasa.gov/firms].

For standard data (MCD14ML) extracted from the FIRMS Download Tool:
MODIS Active Fire Detections extracted from MCD14ML distributed by NASA FIRMS. Available on-line [https://earthdata.nasa.gov/active-fire-data].

In the unwise event you use a mixture of near real-time and standard data, you will need to cite both MCD14DL and MCD14ML (extracted by FIRMS).

### *Disclaimer*

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